

List of confirmed apicoplast proteins

Gene ID	Product Description	Apicoplast process or pathway	Source	New name	Cluster
20 genes used to seed cell cycle data to create the 369 G1 apicoplast list					
TGME49_021330	DNA gyrase subunit A, putative	Genome maintanance	Confirmation - this study	TgGyrA	Broad G1
TGME49_064080	acyl carrier protein	Fatty acid sythesis	ACP, PMID: 9770490, PMID: 16920791	ACP	Tight G1 (15 genes) + pomoter element
TGME49_093590	3-oxoacyl-[acyl-carrier-protein] synthase, putative	Fatty acid sythesis	PMID: 12549938, PMID: 16467310	FabB/F	Tight G1 (15 genes) + pomoter element
TGME49_105980	dihydrolipoyl dehydrogenase protein, putative	Pyruvat metabolism	PMID: 17449654	PDH E3	Tight G1 (15 genes) + pomoter element
TGME49_059260	cell division protein, putative		PMID: 19450729, PMID: 17822404	FtsH	Broad G1
TGME49_025990	malonyl CoA-acyl carrier protein transacylase, putative	Fatty acid sythesis	PMID: 12549938	FabD	Tight G1 (15 genes) + pomoter element
TGME49_022020	phosphoglycerate kinase, putative		PMID: 17449654	Phosphoglycerate kinase II	Tight G1 (15 genes) + pomoter element
TGME49_006610	biotin requiring domain-containing protein / 2-oxo acid dehydrogenases acyltransferase catalytic domain-containing protein	Pyruvat metabolism	PMID: 17449654, PMID: 16778769	PDH E2	Tight G1 (15 genes) + pomoter element
TGME49_031890	3-oxoacyl-(acyl-carrier-protein) synthase III family protein, putative	Fatty acid sythesis	(PfKASIII), PMID: 12270624	FabH	Tight G1 (15 genes) + pomoter element
TGME49_072290	pyruvate dehydrogenase E1 beta subunit, putative	Pyruvat metabolism	PMID: 17449654, PMID: 15612915	PDH E1 beta	Tight G1 (15 genes) + pomoter element
TGME49_033500	triosephosphate isomerase, putative		PMID 17449654	Triosephosphate isomerase II	non periodic
TGME49_051930	enoyl-acyl carrier reductase	Fatty acid sythesis	PMID: 11239932, PMID: 17327670	Fabi	Tight G1 (15 genes) + pomoter element
TGME49_099070	pyruvate kinase, putative	Pyruvat metabolism	PfPyKII, PMID: 19015045	Pyruvate kinase II	Broad G1
TGME49_009710	50S ribosomal protein L28, putative	Translation	PMID: 9770490	rpl28	Broad G1
TGME49_040600	TCP-1/cpn60 chaperonin family protein, putative	Iron-Sulfur cluster	PfCPN60, PMID: 14747157	CPN60	Tight G1 (15 genes) + pomoter element
TGME49_021320	acetyl-CoA carboxylase, putative	Fatty acid sythesis	PMID: 10557330	ACC1	Tight G1 (15 genes) + pomoter element
TGME49_112110	nucleoredoxin, putative		PMID: 18586952	Atrx	Broad G1
TGME49_045670	pyruvate dehydrogenase, putative	Pyruvat metabolism	PMID: 17449654, PMID: 15612915	PDH E1 alpha	Tight G1 (15 genes) + pomoter element
TGME49_066760	isocitrate dehydrogenase, putative		PMID: 17784785	ICDH2	Tight G1 (15 genes) + pomoter element
TGME49_061070	hypothetical protein	Metabolite import	PMID: 17449654, PMID: 17822404, PMID: 20036630	APT	Tight G1 (15 genes) + pomoter element
Confirmed apicoplast genes included in the first 200 hits of the 369 G1 apicoplast list					
TGME49_085700	hypothetical protein	Apicoplast proteins import	PMID: 19808683	Udf ap	Tight G1 (15 genes) + pomoter element

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TGME49_055680	YbaK / prolyl-tRNA synthetases associated domain containing protein	Isoprenoid synthesis	Nair et al; in press	YgbB	Broad G1
TGME49_053730	importin-alpha re-exporter, putative	Isoprenoid synthesis	Nair et al; in press	4-diphosphocytidyl-2-methyl-D-erythritol synthase	Broad G1
TGME49_089940	uroporphyrinogen decarboxylase, putative	Heme biosynthesis	PfHemE, PMID: 19523497	HemE (UROD)	Broad G1
TGME49_055690	2C-methyl-D-erythritol 2,4-cyclodiphosphate synthase domain-containing protein	Isoprenoid synthesis	Nair et al; in press	2C-methyl-D-erythritol 2,4-cyclodiphosphate synthase domain-containing protein (S _{cbs})	Broad G1
TGME49_008820	1-deoxy-D-xylulose 5-phosphate synthase, putative	Isoprenoid synthesis	Nair et al; in press	DXP synthase	Broad G1
TGME49_027970	DNA-binding protein HU, putative	Genome maintenance	TgHU, Rieff unpublished, PfHU, PMID: 18663012	TgHu	Tight G1 (15 genes) + promoter element
TGME49_115640	biotin/lipoate A/B protein ligase domain-containing protein	Lipoic acid de novo synthesis	PfLipB, PMID: 18069893, PMID: 15225307	LipB	Broad G1

Identified in this study

TGME49_091670	RNA helicase, putative	DNA-Replication and repair ?	This study		Broad G1
TGME49_059230	hypothetical protein	DNA-Replication and repair ?	This study		Tight G1 (15 genes) + promoter element
TGME49_039320	hypothetical protein, conserved	Transcription ?	This study		Tight G1 (15 genes) + promoter element
TGME49_110770	hypothetical protein		This study	TgAtrx2	Broad G1
TGME49_039680	hypothetical protein, conserved		This study		Broad G1
TGME49_002440	hypothetical protein		This study		
TGME49_001270	hypothetical protein		This study		Broad G1
TGME49_021920	hypothetical protein	Iron-Sulfur cluster ?	This study	NFU	Broad G1
TGME49_008840	ATP-dependent DNA helicase, putative	DNA-Replication and repair ?	This study	DNA dependant DNA helicase	Broad G1
TGME49_087270	hypothetical protein	Apicoplast proteins import	this study, PtPPC1, PMID: 21498883	PPC1	Broad G1

Confirmed apicoplast proteins not present in the 369 G1 apicoplast list

TGME49_055370	hypothetical protein	Apicoplast proteins import	PMID: 18757752	TIC20	Tight G1 (15 genes) + promoter element
TGME49_086050	hypothetical protein	Apicoplast proteins import	PfTIC22, PMID: 19502580	TIC22	
TGME49_072390	hypothetical protein	Apicoplast proteins import	PtOmp85, PMID: 20042599	TOC75 (OMP85)	Broad G1
TGME49_081940	hypothetical protein, conserved	Apicoplast proteins import	PMID: 19808683	Der1 _{Ap}	Tight G1 (15 genes) + promoter element
TGME49_121640	cell division protein 48, putative	Apicoplast proteins import	PMID: 19808683	Cdc48 _{Ap}	Broad G1
TGME49_114890	ubiquitin-activating enzyme E1, putative	Apicoplast proteins import	PfUbcE1, PMID: 19502583	Ubiquitin-conjugating enzyme E1	Broad G1
TGME49_095990	ubiquitin-conjugating enzyme E2, putative	Apicoplast proteins import	PfUbcE2, PMID: 19502583	Ubiquitin-conjugating enzyme E2	Broad G1

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TGME49_091980	ubiquitin-transferase domain-containing protein	Apicoplast proteins import	Agrawal unpublished	Ubiquitin-activating enzyme E1	Tight G1 (15 genes) + promoter element
TGME49_003420	phosphopantethiene--protein transferase domain containing protein	Fatty acid synthesis	CpACPS-PPT, PMID: 16002647	ACPS-PPT	Broad G1
TGME49_121570	(3R)-hydroxymyristoyl ACP dehydrase, putative	Fatty acid synthesis	PMID: 18274777	FabZ	Tight G1 (15 genes) + promoter element
TGME49_017740	oxoacyl-ACP reductase, putative	Fatty acid synthesis	PfFabG, PMID: 12646215	FabG	Tight G1 (15 genes) + promoter element
TGME49_030990	hypothetical protein	Iron-Sulfur cluster	PMID: 18173393	Dephospho-CoA kinase	Broad G1
TGME49_015070	ferredoxin	Iron-Sulfur cluster	PMID: 11056177	Plant-type ferredoxin	Broad G1
TGME49_098990	ferredoxin NADP+ oxidoreductase, putative	Iron-Sulfur cluster	PMID: 11056177	Plant-type ferredoxin-NADP ^b -reductase	Broad G1
TGME49_073960	10 kDa chaperonin, putative	Iron-Sulfur cluster	PfCPN20, PMID: 14747157	Chaperonin 20	Broad G1
TGME49_053900	delta-aminolevulinic acid dehydratase, putative	Heme biosynthesis	PfALAD, PMID: 14638682	HemB (ALAD)	Broad G1
TGME49_071420	porphobilinogen deaminase, putative	Heme biosynthesis	PfPBGD, PMID: 17962188	HemC (PBGD)	Broad G1
TGME49_058650	ferrochelatase, putative	Heme biosynthesis	PMID: 15307818	FC	Broad G1
TGME49_026400	lipoic acid synthase	Lipoic acid de novo synthesis	PMID: 12860390	Lipoate synthase LipA	Broad G1
TGME49_094900	DnaK family domain containing protein	Lipoic acid de novo synthesis	PMID: 19434237	Lipoic acid protein ligase A2 LipLA2	Broad G1
TGME49_097780	DNA gyrase subunit B, putative	Genome maintenance	PfGyrB, PMID: 17499371	GyraseB	Broad G1
TGME49_061800,T GME49_061920	helicase, putative/DNA polymerase I, putative	DNA-Replication and repair	PMID: 19402939	TgPrex	Broad G1
TGME49_018850	ribosomal protein S9, putative	Translation	PMID: 9770490	ribosomal P S9	Tight G1 (15 genes) + promoter element
TGME49_069190	glyceraldehyde-3-phosphate dehydrogenase		PMID: 17784785		Broad G1
TGME49_113120	RNA polymerase Rpb3/Rpb11 dimerisation domain-containing protein			RNA polymerase Rpb3/Rpb11 dimerisation domain-containing protein	Broad G1